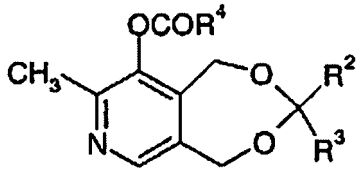
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A process for manufacturing a 3-unsubstituted, 3-monosubstituted or 3,3- disubstituted 9-acyloxy-1-5-dihydro-8-methylpyrido [3,4-e] [1, 3] dioxepin of the general formula

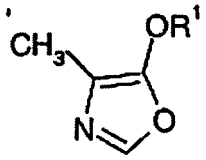


I

wherein each of R^2 and R^3, independently, ~~signifies~~ is hydrogen, C_{1-4}-alkyl, C_{2-4}-alkenyl, phenyl-C_{1-4}-alkyl or phenyl, or R^2 and R^3 together with the carbon atom to which they are attached signify C_4- to C_6-cycloalkylidene, and R^4 ~~signifies~~ is C_{1-4}-alkyl or C_{1-4}-haloalkyl,

and optionally for manufacturing pyridoxine, wherein

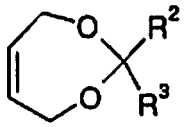
~~characterized by~~ the process comprises performing addition reaction between a 4-methyl-5-alkoxy-oxazole of the general formula



II

wherein R^1 ~~signifies~~ is C_{1-4}-alkyl,

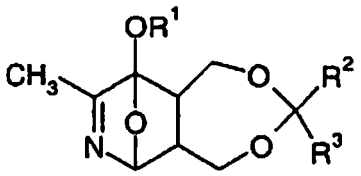
and a 2-unsubstituted, 2-monosubstituted or 2,2-disubstituted 4,7-dihydro-(1,3)-dioxepin of the general formula



III

wherein R^2 and R^3 ~~have the above-mentioned significances~~ are as defined above,

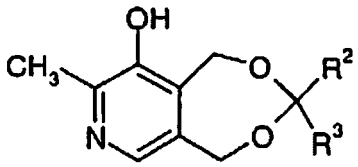
in the substantial absence of a solvent and a catalyst to give a product mixture consisting essentially of the appropriate Diels-Alder adduct of the general formula



IV

wherein R^1 and R^2 and R^3 ~~have the above-mentioned significances~~ are as defined above,

in a major proportion and the appropriate 3-unsubstituted, 3-monosubstituted or 3,3-disubstituted 1,5-dihydro-8-methylpyrido[3,4-e] [1,3]dioxepin-9-ol of the general formula



V

wherein R^2 and R^3 ~~have the above-mentioned significances~~ are as defined above,

in a minor proportion,

removal of a substantial proportion of the unreacted starting materials of formulae II and III from the product mixture by distillation under reduced pressure,

addition of a substantially anhydrous organic acid to said product mixture and rearrangement of the Diels-Alder adduct of the formula IV present therein to further 3-

unsubstituted, 3-monosubstituted or 3,3-disubstituted 1,5-dihydro-8-methylpyrido[3,4-e] [1,3]dioxepin-9-ol of the formula V in the presence of said substantially anhydrous organic acid with removal of the generated alkanol R^1OH by distillation under reduced pressure, and

acylation of the resultingly enriched quantity of the methylpyrido[3,4-e] [1,3]dioxepin-9-ol of the formula V with an added carboxylic acid anhydride of the general formula

$(R^4CO)_2O$ VI

wherein R^4 ~~has the above-mentioned significance~~ is as defined above,

to produce the desired 3-unsubstituted, 3-monosubstituted or 3,3-disubstituted 9-acyloxy- 1,5-dihydro-8-methylpyrido [3,4-e] [1,3] dioxepin of the formula I,

and optionally converting this so-manufactured acylation product of the formula I to pyridoxine by acid hydrolysis for achieving deprotection and deacylation.

2. (currently amended) The process according to claim 1, wherein the starting materials of formulae II and III are 5-ethoxy-4-methyl-oxazole (formula II, wherein R^1 ~~signifies~~ is ethyl) and 2-isopropyl-4,7-dihydro-(1,3)-dioxepin (formula III, wherein R^2 ~~signifies~~ is hydrogen and R^3 ~~signifies~~ is isopropyl), respectively.

3. (previously presented) The process according to claim 1, wherein the process step involving the reaction of the starting materials of formulae II and III is effected at temperatures from about 130°C to about 170°C, preferably from about 145°C to about 160°C.

4. (previously presented) The process according to claim 1, wherein the molar ratio of the dihydrodioxepin of the formula III to the 4-methyl-5-alkoxy-oxazole of the formula II in the reaction mixture is from about 0.5:1 to about 5:1, preferably from about 1:1 to about 2:1.

5. (currently amended) The process according to claim 1, wherein distillation under reduced pressure for the removal of a substantial proportion of the unreacted

starting materials of the formulae II and III from the product mixture obtained after the first step is effected by at a pressure in the range from about 10 mbar (1 kPa) to about 100 mbar (10 kPa)~~, preferably from about 20 mbar (2 kPa) to about 50 mbar (5 kPa), most preferably from about 35 mbar (3.5 kPa) to about 45 mbar (4.5 kPa)~~.

6. (previously presented) The process according claim 1, wherein an organic acid with a pKa value of up to about 5, preferably a C_{2-5}-alkanoic acid or a corresponding mono- or multihalogenated C_{2-5}-alkanoic acid, most preferably acetic acid, is used as the substantially anhydrous organic acid for the rearrangement of the Diels-Alder adduct of the formula IV to further 3-unsubstituted, 3-monosubstituted or 3,3-disubstituted 1,5-dihydro-8-methylpyrido[3,4-e] [1,3] dioxepin-9-ol of the formula V.

7. (currently amended) The process according to claim 1, wherein the amount of substantially anhydrous organic acid added for the rearrangement of the Diels-Alder adduct is from about 0.01 to about 2.0 equivalents per equivalent of said adduct~~, preferably from about 1 to about 1.5 equivalents~~.

8. (currently amended) The process according to claim 1, wherein the temperature of the product mixture to which the substantially anhydrous acid is added for the rearrangement of the Diels-Alder adduct is from about 50°C to about 115°C~~, preferably from about 70°C to about 90°C~~.

9. (previously presented) The process according to claim 1, wherein the rearrangement of the Diels-Alder adduct with distillation of the generated alcohol R^1OH is effected at a reduced pressure from about 300 mbar (30 kPa) to about 700 mbar (70 kPa).

10. (currently amended) The process according to claim 1, wherein the carboxylic acid anhydride used for the acylation of the methylpyrido[3,4-e] [1,3]dioxepin-9-ol of ~~the formula~~ the formula V corresponds to the anhydride of the substantially anhydrous acid used in the previous process step, and is preferably acetic anhydride.

11. (currently amended) The process according to claim 1, wherein the amount of carboxylic acid anhydride employed for the acylation is from about 1.05 to about 2 equivalents per equivalent of the methylpyrido[3,4-e] [1,3]dioxepin-9-ol to be acylated~~, preferably from about 1.1 to about 1.5 equivalents~~.

12. (currently amended) The process according to claim 1, wherein the temperature at which the acylation is effected is from about 50°C to about 115°C~~, preferably from about 70°C to about 90°C~~.

13. (previously presented) The process according to claim 1, wherein the process is carried out continuously for two or more steps.

14. (previously presented) The process according to claim 1, wherein the optional final step of converting the so manufactured acylation product of the formula I to pyridoxine is realized by procedures well known in the prior art and, depending on the type of acid involved in the acid hydrolysis, produces pyridoxine in the form of the appropriate acid salt.

15. (original) The process according to claim 14, wherein pyridoxine hydrochloride is produced.

16. (new) The process according to claim 1, wherein distillation under reduced pressure for the removal of a substantial proportion of the unreacted starting materials of the formulae II and III from the product mixture obtained after the first step is effected by at a pressure in the range from about 20 mbar (2 kPa) to about 50 mbar (5 kPa).

17. (new) The process according to claim 1, wherein distillation under reduced pressure for the removal of a substantial proportion of the unreacted starting materials of the formulae II and III from the product mixture obtained after the first step is effected by at a pressure in the range from about 35 mbar (3.5 kPa) to about 45 mbar (4.5 kPa).

18. (new) The process according to claim 1, wherein the amount of substantially anhydrous organic acid added for the rearrangement of the Diels-Alder adduct is from about 1 to about 1.5 equivalents per equivalent of said adduct.

19. (new) The process according to claim 1, wherein the temperature of the product mixture to which the substantially anhydrous acid is added for the rearrangement of the Diels-Alder adduct is from about 70°C to about 90°C.

20. (new) The process according to claim 1, wherein the amount of carboxylic acid anhydride employed for the acylation is from about 1.1 to about 1.5 equivalents per equivalent of the methylpyrido[3,4-e] [1,3]dioxepin-9-ol to be acylated.

21. (new) The process according to claim 1, wherein the temperature at which the acylation is effected is from about 70°C to about 90°C.